

# The Rock Shrew, *Sorex dispar* (Insectivora: Soricidae), in Georgia with Comments on its Conservation Status in the Southern Appalachians

JOSHUA LAERM, CHARLES H. WHARTON,  
*Museum of Natural History and Institute of Ecology*  
*University of Georgia, Athens, Georgia 30602*

AND

WILLIAM MARK FORD  
*Westvaco, Timberlands Division,*  
*Box 577, Rupert, West Virginia 25984*

**ABSTRACT**—The first state record of *Sorex dispar* is reported from Georgia in a high elevation cliff and talus mixed-oak community in Rabun County. New records from localities in Macon County, North Carolina, are also reported. The conservation status of the species is uncertain in the southern Appalachians where collection records indicate it to be rare.

On 29 October 1995 one adult male rock shrew, *Sorex dispar* Batchelder, was found in a sunken pitfall trap on the north face of Rabun Bald, Rabun County, Georgia, at an elevation of 1,280 m. Pitfalls were 946 cm<sup>3</sup> plastic cups (11-cm lip diameter and 14-cm depth) set flush to the ground adjacent to fallen logs, rocks, stumps, or other forest floor debris. The specimen was captured under a protruding gneiss boulder in a cliff and talus slope at the base of a massive rock face which dominates the north face of Rabun Bald. Standard body measurements were 129, 63, 15 mm. This is the first record of the species from Georgia and represents an extension of its range approximately 50 km south from its nearest reported locality in Jackson County, North Carolina (Webster 1987).

The Rabun Bald locality is dominated by a chestnut oak (*Quercus prinus*), northern red oak (*Q. rubra*), red maple (*Acer rubrum*), and black birch (*Betula lenta*) overstory. Witch-hazel (*Hamamelis virginiana*), rosebay rhododendron (*Rhododendron maximum*), sweet pepper bush (*Clethra acuminata*), and fetter bush (*Leucothoe recurva*) dominate the shrub layer. Other small mammals recovered in pitfalls at the locality included *Sorex cinereus*, *S. fumeus*, *Blarina brevicauda*, *Peromyscus maniculatus*, *Microtus pinetorum*, and *Clethrionomys grapperi*.

We previously collected three *S. dispar* specimens in Macon County, North Carolina which, owing to the rarity of the species, we report

on here. One (male; 124, 63, 15) was collected under a boulder on 5 February 1994 adjacent to Turtle Pond Road, 0.4 km east of Turtle Pond Creek, 0.5 km west of US Highway 64. Rock outcrops dominate this north facing slope at an elevation of 1,050 m about 50 m above Turtle Pond Creek. The vegetational community consisted of hemlock (*Tsuga canadensis*), white pine (*Pinus strobus*), and red maple with a rosebay rhododendron understory. Two additional specimens (both males; 120, 65, 16 and 124, 65, 16 mm) were taken on the same date, approximately 3 km distance southwest at Turtle Pond Road, 1.4 km north of NC Highway 106. This community was markedly more xeric, dominated by a white oak (*Q. alba*), chestnut oak, and hemlock overstory with mountain laurel (*Kalmia latifolia*) and blueberry (*Vaccinium* spp.) shrub layer. The site, approximately 100 m above Turtle Pond Creek at an elevation of 1,120 m, was not markedly rocky, and the shrew was taken in a pitfall trap set along a fallen tree. At both of these localities *S. dispar* was taken in association with *B. brevicauda*, *S. cinereus*, *S. fumeus* and *C. gapperi*. Specimens were deposited in the University of Georgia Museum of Natural History.

*Sorex dispar* is endemic to the Appalachian Mountains and is distributed from New Brunswick south. Regionally it is reported from Maryland (Paradiso 1969, North Carolina State Museum records; S. D. Lee, personal communication), Virginia (Handley 1956, 1979, 1991; Holloway 1957; Pagels and Tate 1976; Pagels 1987, 1991; Kaldo and Handley 1993), Kentucky (Caldwell 1980, Caldwell and Bryan 1982, Bryan 1991), Tennessee (Conaway and Pfitzer 1952, Tuttle 1968, Linzey and Linzey 1971, Smith et al. 1974, Kennedy and Harvey 1980, Harvey et al. 1992), North Carolina (Schwartz 1956, Lee et al. 1982, Webster 1987), and now Georgia.

Once regarded as very rare in the central and southern Appalachian, *S. dispar* is now believed to be more widely distributed and occurs in a broader range of habitats than previously supposed (Kirkland et al. 1976; Kirkland and Van Deusen 1979; Kirkland et al. 1979; Kennedy and Harvey 1980; Handley 1979, 1991; Pagels 1987; Kalko and Handley 1993). Although no population estimates are available, published records, available museum specimens, and trapping records suggest that it is uncommon to rare throughout most of its range in the extreme southern Appalachians, but that it may be locally abundant in the central Appalachians. For example, over a 15-year period at Mountain lake, Giles County, Virginia, Kalko and Handley (1993) report *S. dispar* to comprise 10% of the total number of long-tailed shrews recovered and indicate it is common in its preferred habitat (Handley 1979, 1991; C. O. Handley, personal communication). Similarly, Pagels (1987) notes it to be more

locally abundant elsewhere in Virginia than previously believed. However, recent survey data south of Virginia suggest it is rare. Harvey et al. (1992) report only 11 individuals were recovered in 389,995 combined pitfall and snap trap-nights of effort on the Northern District of the Cherokee National Forest (Unicoi, Johnson, Carter, Greene, and Sullivan counties) of eastern Tennessee. South of the Great Smoky Mountains National Park, Harvey et al. (1991) reported none was recovered in 233,567 combined trap-nights in the Southern District of the Cherokee National Forest (Polk, McMinn, and Monroe counties, Tennessee). Elsewhere, in the southern Blue Ridge of western North Carolina, northern Georgia, and northwestern South Carolina, we recovered only the four individuals reported upon here based upon 175,000 combined pitfall and snap trap-nights of effort. We conclude that in the extreme southern Appalachians the species appears to be rare or extremely localized. Additional survey efforts are required to determine the precise habitat associations and status of the species at the southern limit of its range.

*ACKNOWLEDGMENTS*—This study was supported through a cooperative funding agreement between the United States Department of Agriculture Forest Service, Chattahoochee National Forest, the University of Georgia Museum of Natural History, and National Science Foundation grant BSR 9011661. Specimens were collected under authority of Georgia Scientific Collecting Permit 29-000089 and North Carolina Scientific Collecting Permit 95-ES-10.

#### LITERATURE CITED

- Bryan, H. D. 1991. The distribution, habitat and ecology of shrews (Soricidae: *Blarina*, *Sorex* and *Cryptotis*) in Kentucky. *Journal of the Tennessee Academy of Science* 66:187–189.
- Caldwell, R. S. 1980. First records of *Sorex dispar* and *Microsorex thompsoni* in Kentucky with distributional notes on associated species. *Transactions of the Kentucky Academy of Science* 41:46–47.
- Caldwell, R. S., and H. Bryan. 1982. Notes on the distribution and habits of *Sorex* and *Microsorex* (Insectivora: Soricidae) in Kentucky. *Brimleyana* 8:91–100.
- Conaway, C. S., and D. W. Pfitzer. 1952. *Sorex palustris* and *Sorex dispar* from the Great Smoky Mountains National Park. *Journal of Mammalogy* 33:106–108.
- French, T. W., and G. L. Kirkland, Jr. 1983. Taxonomy of the Gasp shrew, *Sorex gaspensis*, and the rock shrew, *Sorex dispar*. *Canadian Field-Naturalist* 97:75–78.
- Hall, E. R. 1981. *The mammals of North America*. Second edition. John

Wiley & Sons, New York, New York.

- Handley, C. O., Jr. 1956. The shrew, *Sorex dispar*, in Virginia. *Journal of Mammalogy* 37:435.
- Handley, C. O., Jr. 1979. *Sorex dispar dispar* Batchelder. Pages 541–544 in *Endangered and threatened plants and animals of Virginia* (D. M. Linzey, editor). Center for Environmental Studies, Virginia Polytechnical Institute and State University, Blacksburg.
- Handley, C. O., Jr. 1991. Mammals. Pages 539–613 in *Virginia's endangered species* (K. Terwilliger, editor). McDonald and Woodward, Blacksburg, Virginia.
- Harvey, M. J., C. S. Chaney, and M. D. McGimsey. 1991. Distribution, status, and ecology of small mammals of the Cherokee National Forest, Tennessee (Southern Districts). Report to the United States Forest Service. Manuscript on file, Center for the Management, Utilization, and Protection of Water Resources, Tennessee Technological University, Cookeville.
- Harvey, J. J., M. D. McGimsey, and C. S. Chaney. 1992. Distribution, status, and ecology of small mammals of the Cherokee National Forest, Tennessee (Northern Districts). Report to the United States Forest Service. Manuscript on file, Center for Management, Utilization, and Protection of Water Resources, Tennessee Technological University, Cookeville.
- Holloway, C. O. 1957. *Sorex dispar* at Mountain Lake Virginia. *Journal of Mammalogy* 38:406.
- Kalko, E. K. V., and C. O. Handley, Jr. 1993. Comparative studies of small mammal populations with transects of snap traps and pitfall arrays in southwestern Virginia. *Virginia Journal of Science* 44:3–18.
- Kennedy, M. L., and M. J. Harvey. 1980. Mammals. Pages 1–50 in *Tennessee Rare Vertebrates* (D. C. Eager and R. M. Hatcher, editors). Tennessee Wildlife Resources Agency and Tennessee Department of Conservation, Nashville.
- Kirkland, G. L., Jr., C. R. Schloyer, and D. K. Hull. 1976. A novel habitat record for the long-tailed shrew, *Sorex dispar*. *Proceedings of the West Virginia Academy of Science* 48:77–79.
- Kirkland, G. L., Jr., D. F. Schmidt, and C. J. Kirkland. 1979. A novel habitat record for the long-tailed shrew (*Sorex dispar*) in New Brunswick. *Canadian Field-Naturalist* 93:195–197.
- Kirkland, G. L., Jr., and H. M. Van Deusen. 1979. The shrews of the *Sorex dispar* group: *Sorex dispar* Batchelder and *Sorex gaspensis* Anthony and Goodwin. *American Museum Novitates* 2675:1–21.
- Lee, S. D., J. B. Funderburg, Jr., and M. K. Clark. 1982. A distributional survey of North Carolina mammals. *Occasional Papers of the North Carolina Biological Survey, North Carolina State Museum of Natural Sciences*, Raleigh.
- Linzey, A. V., and D. W. Linzey. 1971. The mammals of the Great Smoky Mountains National Park. University of Tennessee Press, Knoxville.

- Pagels, J. F. 1987. The pygmy shrew, rock shrew and water shrew: Virginia's rarest shrews (Mammalia: Soricidae). *Virginia Journal of Science* 38:364-368.
- Pagels, J. F. 1991. A high elevation record for the least shrew, *Cryptotis parva* (Say). *Virginia Journal of Science* 42:361-362.
- Pagels, J. F., and C. M. Tate. 1976. Shrews (Insectivora: Soricidae) of the Paddy Knob-Little Back Creek Area of western Virginia. *Virginia Journal of Science* 27:202-203.
- Paradiso, J. L. 1969. Mammals of Maryland. *North American Fauna* 66:1-193.
- Schwartz, A. 1956. A new subspecies of the long-tailed shrew (*Sorex dispar* Batchelder) from the southern Appalachian Mountains. *Journal of the Elisha Mitchell Scientific Society* 72:24-30.
- Smith, C. R., J. Giles, M. E. Richmond, J. Nagel, D. W. Lambert. 1974. The mammals of northeastern Tennessee. *Journal of the Tennessee Academy of Science* 49:88-94.
- Tuttle, M. D. 1968. First Tennessee record of *Mustela nivalis*. *Journal of Mammalogy* 49:133.
- Webster, W. D. 1987. *Sorex dispar*. Pages 39-40 in *Endangered, threatened and rare fauna of North Carolina. Part 1. A reevaluation of the mammals* (M. K. Clark, editor). Occasional Papers of the North Carolina Biological Survey, North Carolina State Museum of Natural Sciences, Raleigh.

*Received 7 December 1995*

*Accepted 6 March 1995*